

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listing, of claims in the application:

Listing of claims:

1. (currently amended) A method for providing multi user file storage comprising the steps of:

- (a) enabling each user of a pre-subscribed user group of one or more users to connect an arbitrary client node at an arbitrary geographic location to a remote file server node via a wide area network,
- (b) enabling each user of the pre-subscribed user group to access files of a file group at the remote file server node via the respective client node connected to the remote file server node via the wide area network, including permitting, when the pre-subscribed user group includes at least two users, more than one user of the pre-subscribed user group to access the same file of the file group at the remote file server node simultaneously,
- (c) maintaining the integrity of the files at the remote file server node by controlling each access to each of the files at the remote file server node so that each access to each of the files at the remote file server node is performed, if at all, on a respective portion of the respective file as most recently updated at the remote file server node, wherein the respective portion is less than all of the respective file, thereby enabling all native operating system application programming interfaces to operate so that all multi-user applications accessing the files function as if the remote file server node, which stores the files, and client nodes, at which such multi-user applications execute, were on the same local area network, and
- (d) delegating access control to a particular file of the group of files to an access control node.

2. (original) The method of claim 1 further comprising the steps of:

- (e) requesting at a particular client node access to one of the files of the group of files, and
- (f) if the one file is the particular file, accessing the particular file at the particular client node only if permitted by the access control node.

3. (original) The method of claim 2 further comprising the steps of:

- (g) issuing the request from the particular client node to the remote file server node, and
- (h) in response to determining that the one file is the particular file, forwarding the request to the access control node.

4. (original) The method of claim 3 further comprising the step of:

- (i) in response to receiving at the particular client node a response from the access control node, issuing further messages pertaining to the access of the particular file directly from the particular client node to the access control node.

5. (original) The method of claim 1 further comprising the step of:

- (e) delegating version control of the particular file to a version control node.

6. (original) The method of claim 5 further comprising the steps of:

- (f) requesting, at a particular client node, for confirmation that at least a part of a particular copy of the particular file is the most updated version of the respective part of the particular copy of the file, and

(g) accessing the part of the particular copy of the particular file only if permitted by the version control node.

7. (original) The method of claim 6 wherein the particular client node stores the part of the particular copy in a storage device which is physically located locally to the particular client node.

8. (original) The method of claim 6 further comprising the steps of:

(h) issuing a request for confirming that at least a part of the particular file is the most updated version, from the particular client node to the remote file server node, and

(i) in response to determining that the one file is the particular file, forwarding the message to the version control node.

9. (original) The method of claim 8 further comprising the step of:

(j) in response to receiving a response from the version control node at the particular client node, issuing further messages pertaining to version of the particular file directly from the particular client node to the version control node.

10. (original) The method of claim 9 wherein in response to modifying the particular file, the particular client node issues to the version control node a version update message for the file indicating a recent update has occurred on the particular file.

11. (original) The method of claim 5 wherein the version control node is also the access control node for the particular file.

12. (original) The method of claim 1 further comprising the step of:

(e) while a particular client node is in communication with the remote file server node, selectively downloading from the remote file server node to the particular client node via the wide area network a copy of at least a most recently updated portion of a particular file to be accessed by the particular client node and which the particular client node lacks, wherein at all times, each client node in communication with the remote file server node adheres to explicit and implicit file sharing modes specified by the native file application programming interfaces.

Claims 13 to 45. (cancelled)

46. (currently amended) A method for providing multi user file storage comprising the steps of:

(a) enabling each user of a pre subscribed user group of one or more users operating an arbitrary client node at an arbitrary geographic location to communicate with a remote file server node via a wide area network,

(b) enabling each user of the pre subscribed user group to access files of a file group at the remote file server node via the respective client node in communication with the remote file server node via the wide area network, including permitting, when the pre-subscribed user group includes at least two users, more than one user of the pre subscribed user group to access the same file of the file group at the remote file server node simultaneously,

- (c) providing an interface for adapting file access at a particular client node by designating at the particular client node each accessible file of the file group as stored on a virtual storage device, and enabling access to the designated files in a fashion which is indistinguishable, by users of, and applications executing at, the particular client node, with access to one or more files stored on a physical storage device that is locally present at the particular client node, and
- (d) delegating access control to a particular file of the group of files to an access control node, such that access to the particular file maintained at the remote file server node occurs on a most up to date version of the particular file.

47. (original) The method of claim 46 further comprising the steps of:

- (e) requesting at a particular client node access to one of the files of the group of files, and
- (f) if the one file is the particular file, accessing the particular file at the particular client node only if permitted by the access control node.

48. (original) The method of claim 47 further comprising the steps of:

- (g) issuing the request from the particular client node to the remote file server node, and
- (h) in response to determining that the one file is the particular file, forwarding the request to the access control node.

49. (original) The method of claim 48 further comprising the step of:

- (i) in response to receiving at the particular client node a response from the access control node, issuing further messages pertaining to the access of the particular file directly from the particular client node to the access control node.

50. (original) The method of claim 46 further comprising the step of:

(e) delegating version control of the particular file to a version control node.

51. (original) The method of claim 50 further comprising the steps of:

(f) requesting, at a particular client node, for confirmation that at least a part of a particular copy of the particular file is the most updated version of the respective part of the particular copy of the file, and

(g) accessing the part of the particular copy of the particular file only if permitted by the version control node.

52. (original) The method of claim 51 wherein the particular client node stores the part of the particular copy in a storage device which is physically located locally to the particular client node.

53. (original) The method of claim 51 further comprising the steps of:

(h) issuing a request for confirming that at least a part of the particular file is the most updated version, from the particular client node to the remote file server node, and

(i) in response to determining that the one file is the particular file, forwarding the message to the version control node.

54. (original) The method of claim 53 further comprising the step of:

(j) in response to receiving a response from the version control node at the particular client node, issuing further messages pertaining to version of the particular file directly from the particular client node to the version control node.

55. (original) The method of claim 54 wherein in response to modifying the particular file, the particular client node issues to the version control node a version update message for the file indicating a recent update has occurred on the particular file.

56. (original) The method of claim 50 wherein the version control node is also the access control node for the particular file.

Claims 57 to 76. (cancelled)

77. (currently amended) A method for providing multi user file storage comprising the steps of:

- (a) enabling each user of a pre subscribed user group of one or more users operating an arbitrary client node at an arbitrary geographic location to communicate with a remote file server node via a wide area network,
- (b) enabling each user of the pre subscribed user group to access files of a file group at the remote file server node via the respective client node in communication with the remote file server node via the wide area network, including permitting, when the pre-subscribed user group includes at least two users, more than one user of the pre subscribed user group to access the same file of the file group at the remote file server node simultaneously,

- (c) transferring an encrypted key from the remote file server node to a particular client node via a secure channel, the encrypted key being encrypted using an encryption function not known locally at the remote file server node, the key being decryptable using a decryption function not known locally at the remote file server node, the decryption function being also not known locally at any other client node usable by others of the pre-subscribed user group,
- (d) decrypting the transferred key at the particular client node,
- (e) using the key at the particular client node to decrypt information of a file downloaded from the remote file server node or to encrypt information of a file prior to uploading for storage at the remote file server node, and
- (f) delegating access control to a particular file of the group of files to an access control node.

78. (original) The method of claim 77 further comprising the steps of:

- (g) requesting at a particular client node access to one of the files of the group of files, and
- (h) if the one file is the particular file, accessing the particular file at the particular client node only if permitted by the access control node.

79. (original) The method of claim 78 further comprising the steps of:

- (i) issuing the request from the particular client node to the remote file server node, and
- (j) in response to determining that the one file is the particular file, forwarding the request to the access control node.

80. (original) The method of claim 79 further comprising the step of:

(k) in response to receiving at the particular client node a response from the access control node, issuing further messages pertaining to the access of the particular file directly from the particular client node to the access control node.

81. (original) The method of claim 77 further comprising the step of:

(g) delegating version control of the particular file to a version control node.

82. (original) The method of claim 81 further comprising the steps of:

(h) requesting, at a particular client node, for confirmation that at least a part of a particular copy of the particular file is the most updated version of the respective part of the particular copy of the file, and

(i) accessing the part of the particular copy of the particular file only if permitted by the version control node.

83. (original) The method of claim 82 wherein the particular client node stores the part of the particular copy in a storage device which is physically located locally to the particular client node.

84. (original) The method of claim 82 further comprising the steps of:

(j) issuing a request for confirming that at least a part of the particular file is the most updated version, from the particular client node to the remote file server node, and

(k) in response to determining that the one file is the particular file, forwarding the message to the version control node.

85. (original) The method of claim 84 further comprising the step of:

(l) in response to receiving a response from the version control node at the particular client node, issuing further messages pertaining to version of the particular file directly from the particular client node to the version control node.

86. (original) The method of claim 85 wherein in response to modifying the particular file, the particular client node issues to the version control node a version update message for the file indicating a recent update has occurred on the particular file.

87. (original) The method of claim 81 wherein the version control node is also the access control node for the particular file.

Claim 88. (cancelled)

89. (currently amended) A system for providing multi user file storage comprising the steps of:
a remote file server node for enabling each user of a pre subscribed user group of one or more users to connect an arbitrary client node at an arbitrary geographic location to communicate with said remote file server node via a wide area network,
a storage device at the remote file server node for enabling each user of the pre subscribed user group to access files of a file group at the remote file server node via the respective client node in communication with the remote file server node via the wide area network, including permitting, when the pre-subscribed user group includes at least two users, more than one user of the pre

subscribed user group to access the same file of the file group at the remote file server node simultaneously, and

wherein the remote file server node is also for while enabling a plurality of the users to access the same file, concurrently maintaining the integrity of the files at the remote file server node by controlling each access to each of the files at the remote file server node so that each access to each of the files at the remote file server node is performed, if at all, on a respective portion of the respective file as most recently updated at the remote file server node, wherein the respective portion is less than all of the respective file, thereby enabling all native operating system application programming interfaces to operate so that all multi user applications accessing the files function as if the remote file server node, which stores the files, and client nodes, at which such multi user applications execute, were on the same local area network, and

wherein the remote file server node is also for delegating access control to a particular file of the group of files to an access control node.

90. (original) The system of claim 89 wherein a particular client node requests access to one of the files of the group of files, and

wherein if the one file is the particular file, accessing the particular file at the particular client node only if permitted by the access control node.

91. (original) The system of claim 90 wherein the particular client node issues the request to the remote file server node, and

wherein the remote file server node forwards the request to the access control node in response to determining that the one file is the particular file .

92. (original) The system of claim 91 wherein the particular client node, in response to receiving a response from the access control node, issues further messages pertaining to the access of the particular file directly from the particular client node to the access control node.

93. (original) The system of claim 89 wherein the remote file server node delegates version control of the particular file to a version control node.

94. (original) The system of claim 93 wherein a particular client node requests confirmation that at least a part of a particular copy of the particular file is the most updated version of the respective part of the particular copy of the file, and wherein the particular client node accesses the part of the particular copy of the particular file only if permitted by the version control node.

95. (original) The system of claim 94 wherein the particular client node stores the part of the particular copy in a storage device which is physically located locally to the particular client node.

96. (original) The system of claim 94 wherein the particular client node issues a request to the remote file server node to confirm that at least a part of the particular file is the most updated version, and wherein the remote file server node, in response to determining that the one file is the particular file, forwards the message to the version control node.

97. (original) The system of claim 96 wherein the particular client node, in response to receiving a response from the version control node, issues further messages pertaining to version of the particular file directly from the particular client node to the version control node.

98. (original) The system of claim 97 wherein in response to modifying the particular file, the particular client node issues to the version control node a version update message for the file indicating a recent update has occurred on the particular file.

99. (original) The system of claim 93 wherein the version control node is also the access control node for the particular file.

100. (original) The system of claim 89 wherein the remote file server node is also configured for selectively downloading from the remote file server node to the particular client node via the wide area network a copy of at least a most recently updated portion of a particular file to be accessed by the particular client node and which the particular client node lacks, while a particular client node is in communication with the remote file server node, wherein at all times, each client node in communication with the remote file server node adheres to explicit and implicit file sharing modes specified by the native file application programming interfaces.

Claims 101 to 133. (cancelled)

134. (currently amended) A system for providing multi user file storage comprising:

a specific client node at an arbitrary geographic location, usable by a user of a pre subscribed user group for communicating with a remote file server node via a wide area network, the remote file server enabling each user of the pre subscribed user group to access files of a file group at the remote file server node via the respective client node in communication with the remote file server node via the wide area network, including permitting, when the pre-subscribed user group includes at least two users, more than one user of the pre subscribed user group to access the same file of the file group at the remote file server node simultaneously, and an interface for adapting file access at the specific client node by designating at the specific client node each accessible file of the file group as stored on a virtual storage device, and enabling access to the designated files in a fashion which is indistinguishable, by users of, and applications executing at, the specific client node, with access to one or more files stored on a physical storage device that is locally present at the specific client node, and wherein the remote file server node is also for delegating access control to a particular file of the group of files to an access control node, such that access to the particular file maintained at the remote file server node occurs on a most up to date version of the particular file.

135. (original) The system of claim 134 wherein a particular client node requests access to one of the files of the group of files, and wherein if the one file is the particular file, accessing the particular file at the particular client node only if permitted by the access control node.

136. (original) The system of claim 135 wherein the particular client node issues the request to the remote file server node, and

wherein the remote file server node forwards the request to the access control node in response to determining that the one file is the particular file .

137. (original) The system of claim 136 wherein the particular client node, in response to receiving a response from the access control node, issues further messages pertaining to the access of the particular file directly from the particular client node to the access control node.

138. (original) The system of claim 134 wherein the remote file server node delegates version control of the particular file to a version control node.

139. (original) The system of claim 138 wherein a particular client node requests confirmation that at least a part of a particular copy of the particular file is the most updated version of the respective part of the particular copy of the file, and wherein the particular client node accesses the part of the particular copy of the particular file only if permitted by the version control node.

140. (original) The system of claim 139 wherein the particular client node stores the part of the particular copy in a storage device which is physically located locally to the particular client node.

141. (original) The system of claim 139 wherein the particular client node issues a request to the remote file server node to confirm that at least a part of the particular file is the most updated version, and

wherein the remote file server node, in response to determining that the one file is the particular file, forwards the message to the version control node.

142. (original) The system of claim 141 wherein the particular client node, in response to receiving a response from the version control node, issues further messages pertaining to version of the particular file directly from the particular client node to the version control node.

143. (original) The system of claim 142 wherein in response to modifying the particular file, the particular client node issues to the version control node a version update message for the file indicating a recent update has occurred on the particular file.

144. (original) The system of claim 138 wherein the version control node is also the access control node for the particular file.

Claims 145 to 164. (cancelled)

165. (previously presented) A system for providing multi user file storage comprising:

a remote file server node for enabling each user of a pre subscribed user group of one or more users operating an arbitrary client node at an arbitrary geographic location to communicate with a remote file server node via a wide area network,

a storage device at the remote file server node for enabling each user of the pre subscribed user group to access files of a file group at the remote file server node via the respective client node in communication with the remote file server node via the wide area

network, including permitting, when the pre-subscribed user group includes at least two users, more than one user of the pre subscribed user group to access the same file of the file group at the remote file server node simultaneously, and a particular client node,

wherein the remote file server node is also configured for transferring an encrypted key from the remote file server node to a particular client node via a secure channel, the encrypted key being encrypted using an encryption function not known locally at the remote file server node, the key being decryptable using a decryption function not known locally at the remote file server node, the decryption function being also not known locally at any other client node usable by others of the pre subscribed user group,

wherein the particular client node is also configured for decrypting the transferred key at the particular client node, and for using the key at the particular client node to decrypt information of a file downloaded from the remote file server node or to encrypt information of a file prior to uploading for storage at the remote file server node, and

wherein the remote file server node is also for delegating access control to a particular file of the group of files to an access control node.

166. (original) The system of claim 165 wherein a particular client node requests access to one of the files of the group of files, and wherein if the one file is the particular file, accessing the particular file at the particular client node only if permitted by the access control node.

167. (original) The system of claim 166 wherein the particular client node issues the request to the remote file server node, and
wherein the remote file server node forwards the request to the access control node in response to determining that the one file is the particular file .

168. (original) The system of claim 167 wherein the particular client node, in response to receiving a response from the access control node, issues further messages pertaining to the access of the particular file directly from the particular client node to the access control node.

169. (original) The system of claim 165 wherein the remote file server node delegates version control of the particular file to a version control node.

170. (original) The system of claim 169 wherein a particular client node requests confirmation that at least a part of a particular copy of the particular file is the most updated version of the respective part of the particular copy of the file, and
wherein the particular client node accesses the part of the particular copy of the particular file only if permitted by the version control node.

171. (original) The system of claim 170 wherein the particular client node stores the part of the particular copy in a storage device which is physically located locally to the particular client node.

172. (original) The system of claim 170 wherein the particular client node issues a request to the remote file server node to confirm that at least a part of the particular file is the most updated version, and

wherein the remote file server node, in response to determining that the one file is the particular file, forwards the message to the version control node.

173. (original) The system of claim 172 wherein the particular client node, in response to receiving a response from the version control node, issues further messages pertaining to version of the particular file directly from the particular client node to the version control node.

174. (original) The system of claim 173 wherein in response to modifying the particular file, the particular client node issues to the version control node a version update message for the file indicating a recent update has occurred on the particular file.

175. (original) The system of claim 169 wherein the version control node is also the access control node for the particular file.

Claims 176 to 194. (cancelled)